B2767

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection FY 2015 Sched. Insp.

B276731123

FACILITY: FCA US LLC WARREN TRUCK ASSEMBLY PLANT		SRN / ID: B2767
LOCATION: 21500 Mound Road, WARREN		DISTRICT: Southeast Michigan
CITY: WARREN		COUNTY: MACOMB
CONTACT: Stuart Duncan , Environmental Specialist		ACTIVITY DATE: 09/11/2015
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: FY 2015 scheduled inspection of FCA US Chrysler's Warren Truck Assembly Plant		
RESOLVED COMPLAINTS:		

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Warren Truck Assembly Plant (B2767)
a.k.a. Warren Dodge Truck Plant
FCA US, LLC
21500 Mound Road
Warren, Michigan 48091-4840

2015 ROP Renewal: Application No. 201500086 received June 08, 2015

RO Permit Number: MI-ROP-B2767-2011 effective Jan 1, 2011 (Application No. 200900069)

Auto Protocol: "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations", EPA-450/3-88-018 or as amended. FCA US (Chrysler) follows the protocol procedures for both NSPS 2M and RACT Rule 336.1610.

Consent Order No. 11-1984 Voided on June 9, 2002.

Subject to (opt-out of control device requirements via use of HAP compliant coatings): Auto MACT, NESHAP / MACT 4I, 40 CFR, Part 63, Subpart IIII—National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks (Federal Register / Vol. 69, No. 80 / Monday, April 26, 2004 / Rules and Regulations/ Final Rule). Because FCA US (Chrysler) opted out of the post–11/15/90 NSPS or NESHAP / MACT federal regulations for control devices (e.g., RTO, TO) via compliance with Auto MACT by coatings formulations, the control devices are subject to CAM regulations (VOC).

Subject to: Compliance Assurance Monitoring (CAM) (40 CFR Part 64) for VOC control devices (e.g., RTO, TO). Page 54900 Federal Register / Vol. 62, No. 204 / Wednesday, October 22, 1997 / Rules and Regulations / Final rule; Final rule revisions /Compliance Assurance Monitoring (CAM). CAM is a part of enhanced monitoring and compliance certification for ROP / Title V sources under the Clean Air. Obviously, if the control devices (e.g., RTO, TO) were subject the auto MACT monitoring, the devices would be exempt from CAM and the MACT's monitoring would be presumptive CAM. FCA US (Chrysler) like other Auto-manufacturers chose to comply with the Auto MACT via coatings formulations.

Subject to (Notification only for NG fired Boilers No. 3, 4, 5 & 6; 192, 106 MMBTU/Hr > 10 MMBTU [Large Boiler]; Existing Boilers [< January 13, 2003]: 40 CFR Part 63,

Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. Federal Appeals Court has vacated this rule resulting in 112(j) MACT. US EPA promulgated While Boiler MACT 5D is for Major Sources and Boiler MACT 6J is for Area Sources. FCA US is a HAP major source due to auto painting operations.

Subject to: Major Source Boiler NESHAP / MACT 5D, 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Page 7138, Federal Register / Vol. 78, No. 21 / Thursday, January 31, 2013 / Rules and Regulations / Final rule; notice of final action on reconsideration. The December 23, 2011 proposed rule addressed specific issues and provisions the EPA identified for reconsideration. This summary of the final rule reflects the changes to 40 CFR, Part 63, subpart DDDDD (March 21, 2011 final rule) in regards to those provisions identified for reconsideration and on other discrete matters identified in response to comments or data received during the comment period.

Subject to: NSPS Dc, New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Part 60, Subpart Dc). Fuel oil is never used in the boilers. Only boilers installed after June 9, 1989, are subject to NSPS Dc.

Subject to: OLD NESHAP / MACT EEEE/ MACT 4E, 40 CFR Part 63, Subpart EEEE, National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (OLD)(Non-Gasoline); Page 5038 Federal Register / Vol. 69, No. 22 / Tuesday, February 3, 2004 / Rules and Regulations/ Final Rule; Page 42898 Federal Register / Vol. 71, No. 145 / Friday, July 28, 2006 / Rules and Regulations/ Final Rule - Amendments; notice of final action on reconsideration. 7,500 gallons / month > 5,000 gallons / month of purge solvent usage makes this facility subject to this NESHAP.

Subject to: Prevention of Significant Deterioration (PSD) (40 CFR 52.21) or Rule 336.1220 (during LAER review) / Rule 336.2902 (now, >2008) Major Offset Source depending upon attainment status.

Subject to: 40 CFR, Part 60, Subpart MM—Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations (NSPS MM) (45 FR 85415, Dec. 24, 1980)

Subject to: Rule 336.1610. The Rule 610 compliance calculations must be done pursuant to "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations", EPA-450/3-88-018 or as amended. FCA US does not perform NSPS MM calculations separately. Instead the Auto Protocol calculations are used to satisfy NSPS MM emission limits.

Not Subject to: NESHAP/ MACT T, area source National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T; NESHAP/ MACT T); Correction; 29484 Federal Register / Vol. 60, No. 107 / Monday, June 5, 1995 / Rules and Regulations; amended National Air Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T);

Final Rule; Page 25138 Federal Register / Vol. 72, No. 85 / Thursday, May 3, 2007 / Rules and Regulations. Chrysler does not use halogenated solvents in cold-cleaners.

On April 14-17 (destruction efficiencies thermal oxidizers - Color1, Color2, Reprocess, Tu-tone except e-coat RTO), August 11 & 12 and September 10 & 11, 2015, I conducted a scheduled level-2 inspection of FCA US Chrysler's Warren Truck Assembly Plant, located at 21500 Mound Road, Warren, Michigan 48091-4840. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules and the RO Permit Number MI-ROP-B2767-2011 (effective January 1, 2011).

During FY 2015 inspection, Mr. Stuart Duncan (Phone: NA; Cell: 248-421-3906; E-mail: stuart.duncan@fcagroup.com), EHS Engineer, assisted me.

Mr. Brian D. Sayles (Phone: 586-497-3486; Fax: 586-497-6939; Cell: 586-524-5420; E-mail: saylesb@dteenergy.com), P.E., Utilities Services Manager, Chrysler Warren Truck, DTE Energy Services, also assisted with natural gas fired powerhouse.

Messrs. Kevin Waszak (Phone: NA; Cell: 248-224-5896; E-mail: NA), EHS Manager (about Aug 2013 moved to training center), Mark C. Werthman (Phone: 248-576-7377; Cell: NA; E-mail: mdw25@chrysler.com), CHMM, Manager, Corp. Regulatory Planning and Environmental Affairs, Scott Goeglein (Phone: 248-202-3705), EHS Manager, were not present.

About 2014, Mr. Mathew Smith (Phone: 586-497-2444; Cell: 248-229-7018; E-mail: mws54@chrysler.com), EHS Engineer, transferred to Sterling Heights Assembly Plant.

Mr. Tom Thornton (Phone: 586-897-2444 at Dodge Truck and 586-978-6129 at Sterling Heights Assembly, Cell: 248-535-5845; E-mail: tt158@chrysler.com), Resident Environmental Specialist, Paint Operations, and Ms. Amy J. Berendt (Ph: 586-497-3143; Fax: 586-497-2512; E-mail: ajb75@Chrysler.com and amy.berndt@arcadis-us.com), Staff Engineer, separated from Environmental Duties at Chrysler WTA; but still with Chrysler. Ms. Berendt, before she was hired by Chrysler, used to work for Arcadis G&M of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, Michigan 48377.

In 2010, Ms. Berendt replaced Mr. Michael Check (Phone: 586-497-3143; Fax: 586-497-2512; E-mail: michael.check@arcadis-us.com and mc1140@chrysler.com). Mr. Check worked for Arcadis G&M of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, Michigan 48377. Mr. Check replaced Ms. Brenna Harden (Phone: 248-994-2240; Fax: 248-994-2241; E-mail: brenna.harden@arcadis-us.com), Staff Engineer, a contract employee, who in turn replaced Ms. Sandy Lopez, who retired about 2008. Ms. Harden also worked for Arcadis G&M of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, Michigan 48377. Ms. Harden replaced Ms. Lopez, who retired.

Mr. Tim J. Nelson (Ph: 586-497-3486, Fax: 586-4976939, Cell: 586-634-0787), Utilities Services Manager, Chrysler Warren Truck, DTE Energy Services, separated from DTE

about 2013.

About August 2007, Mr. S. Adekunle Sanni (Phone: 586-897-2444, Cell: 248-808-0121; E-mail: sas48@chrysler.com), Paint Environmental Specialist,replaced Ms. Sandra A. Hoelzhammer (Phone: 586-897-2444, Cell: 248-770-2279; E-mail: sah24@daimlerchrysler.com), Paint Operations AME, who transferred to Purchasing Department, and latter in CY2008 separated from Chrysler. Ms. Sandy Lopez (Ph: 586-497-3143, Cell: 734-485-7558) retired in CY2008. Again, about June 2008, Mr. Tom Thornton (Phone: 586-897-2444 at Dodge Truck and 586-978-6129 at Sterling Heights Assembly, Cell: 248-535-5845; E-mail: tt158@chrysler.com), Resident Environmental Specialist, Paint Operations replaced Mr. Sanni. Again in CY2009 after bankruptcy Mr. Sanni replaced Mr. Thornton, who transferred to Solid Waste Management Unit. Again, about November 2009, Mr. Thornton replaced Mr. Sanni.

In December 2010, Mr. Sanni replaced Ms. Kay Bedenis. Again, about 2011, Sanni is transferred to SHAP, Sterling Hts.

FCA US, LLC (fka Chrysler Group, LLC), owns and operates the Warren Truck Assembly Plant (WTAP), an automotive manufacturing complex. WTAP makes light duty trucks. The parts and materials that make up the vehicles; such as, engines, seats, doors, hoods, brakes, oils and paints are made at other plants and delivered to WTAP. At WTAP, body parts are welded together, cleaned painted, and assembled.

The assembly process begins with the framing of body by welding together various vehicle parts, such as doors, hoods, etc. After the body is framed, it then proceeds through a body cleaning and phosphate treatment step. An Electro Deposition Coating (E-Coat) dip painting process coats and primes the body surface in preparation for final paint finish. Powder coating is applied as primer surfacer and anti-chip. The powder coating anti-chip and powder coating primer surfacer are not a part of the RO permit. The application of topcoat painting finish is carried out through two identical parallel coating lines (Color1 & Color2). Tu-tone (4% of vehicles) and highbake reprocess (for repairs) lines are also present. Cleaning and equipment purging is also associated with the coating operations. Several smaller coating operations are also located throughtout the assembly plant. Volatile organic compounds (VOCs) are emitted from coating processes, cleaning operations, and various other related processes.

When the original air quality permits were issued for the coating processes in 1984, Macomb County was designated as nonattainment area for ozone (O3), but has been reclassified as attainment for Particulate Matter (PM). The plant met the definition of a "major offset source" and was subject to Rule 336.1220 (during LAER review) / Rule 336.2902 (now, >2008). The proper installation, operation and maintenance of the thermal oxidizers (aka incinerators) and regenerative thermal oxidizer for E-coat process (E-coat RTO), which were permitted under Lowest Achievable Emission Rate (LAER) permits, are still requirements under LAER. The LAER requirements cannot be relaxed pursuant to the federal Clean Air Act. To ensure that an incinerator is operated in accordance with the LAER requirements, the ROP requires the plant to monitor the temperature of each thermal oxidizer. Also, a minimum temperature requirement has been set for each thermal oxidizer. The set temperatures are based on corresponding

temperatures of the permit requirements or the latest stack tests for the destruction efficiencies of the incinerators.

WTAP is considered a major source under 40 CFR Part 70 because the potential emission of criteria pollutant: Nitrogen Oxides (NOx), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC) are more than 100 tons per year and therefore exceed the major source thresholds. Under Section 112 of the Clean Air Act, a major source is defined as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single hazardous air pollutant (HAP) more than 10 tons per year or aggregate HAPs more than 25 tons per year. For the purpose of applicability to Michigan's Renewable Operating Permit Program, Fiat-Chrysler Group's Warren Truck Assembly Plant is a major stationary source of HAPs, and is considered contiguous to the Chrysler Warren Office and Warehouse as well as to the Chrysler Warren Stamping Plant.

WTAP is subject to Prevention of Significant Deterioration (PSD) (40 CFR 52.21) regulations because the stationary source has the potential to emit greater than tons.

The prime coat (dip e-coat), tutone, high bake repair, and top coat lines are subject to the federal New Source Performance Standards (NSPS MM) for Automobile and Light Duty Truck Surface Coating Operations promulgated in 40 CFR Part 60 Subpart MM. The coating process is also subject to Rule 336.1610, which is considered Reasonably Available Control Technology (RACT) standard. Rule 336.1610 compliance calculations must be done pursuant to "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations", EPA-450/3-88-018 or as amended. The protocol determines the daily VOC emission rate (pounds of VOC per gallon of coating solids deposited), for complete automobile & light-duty truck topcoat operations. The protocol considers and describes how to determine the following factors, including the necessary testing and recordkeeping requirements:

1. Daily usage of each coating
2. VOC generated per gallon of each coating used
3. Volume solids content of each coating used
4. Daily weighted transfer efficiency of each coating used
5. Daily weighted bake oven exhaust control credit

The RO Permit consists of 9 emission units and 12 flexible groups (9 EU and 12 FG). The emission units are:

1. Mechanical body washer for cleaning light duty truck bodies (EU-Mech-Washer)

2. Cathodic electro-deposition primer system (EU-Uniprime)

3. Solvent wipes and body cleaning operation (EU-Solvent-Wipe)

4. Sealers and adhesives applications (EU-sealers&Adhesiv)

5. Blackout booth (EU-blackout-Booth)

6. Topcoat on tutoned light duty truck bodies (EU-Tutone)

7. Operations of filling fuel tanks and windshield washer solution reservoirs in new light duty trucks (EU-fluid-Fill)

8. Final repair systems (EU-Final-Repair)

9. Portable boilers (EU-Tempboilers) – NSPS Dc boilers.

Paint sludge dryer (EGSLUDGE-DRYER), which is, after CY2009, permanently shut down.

The flexible groups (12) are:

1. Various storage tanks that are subject to NSPS subpart Kb (FG-GasolineTanks),

2. Operations including carpenter shop (maintenance tool shop – removed), etc. that are subject to Rule 331 (FG-Rule 331). Plasma cutting operation is removed.

3. Unleaded gasoline storage tanks (FG-StorageTanks),

4. 4 natural gas fired boilers (FG-Boilers),

5. Spot repair stations for reprocess low bake repairs (FG-Reprocess – spot repair deck),

6. Various emission units including polishing minor surface defect operation and sanding operations which has particulate emissions (FG-PM-Misc),

7. Topcoat and topcoat repair operation (FG-Topcoat) - Identical Color1 and Color2, Tu-tone associated with Color1 (but not Color2), High bake reprocess

8. Auto MACT requirements (FG-AutoMACT)

9. Organic Liquid Distribution MACT requirements (FG-OLD)

10. Cold cleaners (FG-COLDCLEANERS)

11. Various surface coating units that are exempt from the requirements of R 336.1201 pursuant to R 336.1278 and R 336.1287(c) (FGRULE287(c)). No 287(c) coating booth at this time.

12. Misc. processes exempt from the requirements of R 336.1201 pursuant to R 336.1290 (FG-RULE290). No 290 misc. process at this time.

The company does not use any of the halogenated solvents regulated by Maximum Achievable Control Technology (MACT T) in the cold cleaners; therefore, the cold cleaners are not subject to the MACT standards for halogenated solvent cleaner (40 CFR 63 Subpart T).

Steam for plant process and heating is produced by four natural gas-fired boilers on site (FG-GAS-BOILERS). Portable boilers provide steam during non-heating season (summer).

CY 2014 production

CY2014: 296,600 painted and 315,728 built.
2014-Q4: 74,604 painted and 81,131 built.

Mech-Washer (Body Works) (E-1.2)

Before a car body leaves welding area, the body is washed with cleaner and rust inhibitor using mechanical body washer. Soap (Hazardous Substance Liquid, NOS Sodium Nitrate) is used. After soap and hot water wash, truck is blow-dried.

EU-Mech-Washer, I: VOC records are kept: 0.09 pounds of VOC per gallon of soap, 10.05 pounds per hour (SC I.1 limit: 21.5 pph) 4.24 tons per 12-mo period (SC I.2 limit: 45.24 tpy).

EU-Mech-Washer, VI: Hours of operation, materials usage, VOC emission rates, and VOC content records are kept. The required calculations are performed to show compliance with the limits.

The records and calculations are kept on file. Quarterly VOC Reports are submitted. The above data is based upon 4Q2014 VOC Report.

Uniprime- (Dip E-Coat, E-1.6)

Control device: E-coat oven RTO (Durr Rotary design)

This is a cathodic electrodeposition primer system (there is no anodic system in US any more), which applies a primer coating to vehicle bodies, which are cured in an oven. The process is equipped with one regenerative thermal oxidizer (1 e-coat RTO) to destroy VOC from e-coat bake oven. In CY2008, one e-coat Durr RTO replaced two e-coat thermal oxidizers (2 TO) as a part of energy savings program. In 2009, 2 E-coat TOs that an RTO replaced moved to Color1 and Tu-tone ovens; one TO at each location.

Before electrodeposition (e-coat), aka uni-prime, a car body is cleaned and prepared for coating application. Cleaning and preparation is done in many stages:

- Stage 0: Pre-clean with water; water is recycled.
- Stage 1 & 2: Hot water (steam is replaced), chemical detergent cleaning with high velocity nozzles. Stage 1 soap water spray. Phosphate system stage 2 immersion cleaner (Hot).
- Stage 3: Stage 3 cold water spray. Rinse with water, which is recycled to stage 1
- Stage 4: Rinse with titanium based solution (34000-gallon conditioner tank).
- Stage 5: Zinc phosphate immersion coating (acidic, 200 ppm Ni, 600 ppm Mg). 200 mg per sq. ft phosphate deposit. Sludge from Stage 5, is filtered on a filter paper with a vacuum to pull water.
- Stages 6-9: Rinsed with city (Stage 6), DI water, virgin DI water. Water is recycled in a counter-current fashion in a staged operation; i.e., Stage 9 water is recycled to Stage 8 and so on. 200-300 mg of zinc phosphate per square feet.

For assembled car bodies (non-painted), two (2) Saint Clair Systems X-Therm Ultra High Efficiency hot water heaters are present to supply hot water for body wash. The heaters (2) are fired with natural gas. Dry-off blowers are present to remove water from bodies.

Uniprime system consists of immersion cathodic e-coat with an application of DC Voltage. While a car body is grounded (negative - cathode), paint particles are positively charged. Due to the application of DC Current and plating reaction, an acid (sulfamic solution) is created. Paint temperatures are tested (91-95° F). Paint solids are

maintained at 20% by mass in 110,000-gallon paint bath; rest is DI water. Water is purged based upon acidity (electrical conductivity, mhos) and equal amount of fresh make-up water is added to balance purge and losses; the purging maintains proper pH. Ultrafiltration Unit (UF) is used to recover paint; recovered paint (UF concentrate) is recycled into e-coat bath. Upon completion of electrodeposition (e-coat) of paint solids on a car body, a body is removed and excess paint is rinsed in three (3) stages. Paint and water are recycled using UF membranes. Ultrafiltration (UF) Unit is used to recover paint; recovered paint (UF concentrate) is recycled into e-coat bath. Finally, a body is rinsed with virgin DI water (RO). Thus e-coated truck's excess water is blown off. Paint solids are always returned to the e-coat bath; UF permeate is used to wash truck body being e-coated and UF concentrate (paint solids) is returned to e-coat bath. Small molecular size paint solids in UF permeate help put finishing touches to just e-coated car / truck body.

The following processes exist:

1. Spray wash system, 2,500 gallons / minute and 5-10 psi
2. Wash bath solids, 0.8% conductivity, 800-2000 mhos, pH = 4.5-6.2 T=85-95 °F
3. DI water wash – recirculation tank

The e-coated car body is baked in an oven at 375 °F. Solvent (85% IPA, 15% water) wipes were used to clean a body; the solvent wipes are not used anymore. E-coat oven is natural gas fired. When RTO malfunctions, e-coat system completely shuts down via an inter-lock system. A cool-off tunnel is present cool the trucks / jobs after baking at 375 °F. In order to facilitate production interruption (lunch, overnight), a strip bank is present to hold up to 170 jobs.

Mr. Keith White assisted with e-coat process.

Mr. Larry Lablanc (Cell: 810-335-2399), Laboratory Tech, passed away according to Mr. White.

EU-Uniprime, I: Based upon 4Q2014 report, VOC emissions are:

1. 2.28 pounds of VOC per hour (limit: 14.5 lbs/hr) – Uniprime dip tank
2. 15.05 tons of VOC per year (limit: 31.23 tpy) - Uniprime dip tank
3. 0.79 pounds of VOC per hour (limit: 8.2 lbs/hr) - Uniprime oven
4. 2.06 tons of VOC per year (limit: 17.66 tpy) - Uniprime oven

5. 0.06 pounds of VOC per gallon of applied coating solids (limit: 1.34 lbs VOC / GCSA, assuming 100% TE)

EU-Uniprime, III: E-coat RTO is operating properly based upon temperature charts. SC III.1 requires minimum operating temperature of 1450 °F. However, based upon November 2010, E-coat RTO Ladder Study, AQD approved the RTO operating temperature of 1375 °F via Robert Byrnes' Dec 21, 2010, e-mail to Mary Turner. The ROP limit's 1450 °F was based upon March 11, 2008, Destruction Efficiency (DE) tests.

EU-Uniprime, V:

1. VOC: PPG determines coating VOC content using US EPA RM24. US EPA Reference Method 24 (US EPA RM24) tests are done by PPG.

2. OSL: Oven Exhaust Control Device VOC loading (Oven Solvent Loading) was conducted in 1990s. OSL is assumed to be 85%. At any rate, default TE value is assumed to be 100 percent for e-coating process.

3. DE: Based upon the September 2001 tests, destruction efficiencies (DE) are 99 and 98 percents for two thermal oxidizers (2 TO), which served E-coat ovens A & B (two ovens). Oven loading is assumed to be 85 percent. However, in CY2008, two old thermal oxidizers (2 TO) were replaced by one Durr Regenerative Thermal Oxidizer (1 RTO). On February 06, 2008, AQD received the e-coat RTO test plan dated February 5, 2008. AQD's Tom Maza approved the test plan via DE test plan approval letter dated March 6, 2008. Durr Systems, Inc. hired Bureau Veritas North America, Inc. (248-344-2661) of Novi, Michigan, to conduct DE tests. AQD received the DE test report dated April 10, 2008 (the cover letter dated April 16), on April 23, 2008. Inlet and outlet VOC sampling was conducted on March 11, 2008. Destruction Efficiency (DE) reported is 95 percent based upon three run (91, 96 & 97) average. RTO firebox temperature was 1,450 °F. On October 21, 2010, AQD received an E-coat RTO Ladder Study plan. AQD neither approved this plan nor observed the sampling. The purpose of the ladder study was to reduce the E-coat RTO operating temperature from 1450 °F to 1337 °F. The RTO was able to destroy 92.7% of VOC at 1337 °F. The same RTO was able to destroy 95.2% (average of 95.1 and 95.3) of VOC at 1375 °F during November 9-10, 2010 testing. Hence, AQD approved the RTO operating temperature of 1375 °F (EU-Uniprime, III). Bureau Veritas North America, Inc. (248-344-2661) of Novi, Michigan, conducted DE tests for the E-coat RTO ladder study. AQD (Tom Maza) did not review the ladder study report in detail; only spot checks were done.

4. FCA US (Chrysler) is expected perform destruction efficiency tests about November 2015.

EU-Uniprime, VI:

1. E-coat RTO (1) thermocouples are calibrated or replaced on annual basis. Maintenance Dept. keeps calibration / replacement records. Durr inspects RTO on an annual basis.

2. Production hours, coating usage, coating content, OSL & TE values, etc. records are kept. The calculations showing VOC limits (EU-Uniprime, I) compliance are performed in a timely manner and quarterly VOC reports are submitted.

3. A conveyor interlock system that stops the conveyor when RTO bypass occurs is present.

4. E-coat RTO CAM plan was submitted with the ROP renewal application. During FY 2013 inspection, Mr. Smith gave a copy of CAM.

EU-Uniprime, VII: Semi-annual, annual cert. and quarterly (VOC) reports are submitted.

EU-Uniprime, IX: Chrysler complies with NSPS MM via Auto Protocol calculations. According CAM, Chrysler is required to notify AQD of excursions as defined in CAM.

Poweder antichip coating (Exempt; not part of ROP)

The antichip powder coating process is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287(d) and there is no applicable requirement as a condition of the exemption; hence the powder coating process is not a part of the RO Permit.

Entire car body is sprayed with powder antichip using 6 robots (2 nozzles on each robot) and 24 bells. While there are16 bells (8 on each side) for vertical surface, there are 8 bells for horizontal surface. Robots use 100%virgin powder. A car body is sprayed with a mixture of 20% virgin powder and 80% recycled / reclaimed powder. A hood is spray with 100% virgin powder. The collectors are present at the lower level to collect overspray particles. Humidity (< 65% RH) and temperature (< 65 deg F) are important factors and are controlled carefully using an AC system. 2-4 mil powder coat is deposited versus 1 mil e-coat application; 1 mil = 1/1,000 inch. While the particles are charged, a body is grounded. 2.2-3.2 mils of coating is applied to horizontal surface, 1.7-2.7 mils on vertical surface, 2-2.7 on rocker panel (where rocks hit). Two (East & West) ovens to bake the powder coating.

At the lower level, the elaborate reclamation operations are present to recycle / reuse the powder. Air is recycled as well; 20 percent of air is purged to control fines in the recycled powder, an equal amount of make-up air is added to maintain balance; effectively 80% of air is recycled. Both recycled air and make-up air are filtered using Torit Cartridge Filters.

Powder comes in totes or lately bags. Virgin powder is of Tyler #200 mesh size (0.074 mm = 0.0029 inches). Recycled powder is of Tyler #230 mesh size (0.06 mm = 0.0025

inches). There are virgin, mix (20 percent virgin plus 80 percent reclaim), 100 % recycle mix tanks. Mix tanks are kept in a fluidized state to prevent cluster formation. There are two powder systems (A & B). The powder coating is baked in 8 zone oven (6 radiant followed by 2 convection zones). Powder coat is baked for 30 minutes at 360-450 deg F.

While a horizontal surface is sprayed with 100 percent virgin powder, a vertical surface is sprayed with a mixture of 20 percent virgin powder and 80 percent recycle / reclaim powder.

EU-Sludge-dryer (E-1.3, Permanently Shutdown; removed from 2011 ROP)

Before permanent shutdown in 2006, paint sludge was dried using the natural gas fired sludge dryer equipped with a cyclone to collect particulate matter and thermal oxidizer to destroy VOC. The sludge dryer has not operated since September 2006; it was idled. In CY2008, many important components were removed and the sludge dryer never operated again. During FY2008 inspection, I asked Mr. Tom Thornton to send Rule 336.1215/1216 notice regarding this permanent shutdown status. The notices were never sent. However, the status change was incorporated into 2011 ROP.

By September 2009, all components of the sludge dryer were removed.

Applied Science & Technology, Inc. (ASTI), (810-225-2800) of Brighton, Michigan, conducted a performance test for particulate matter emission in May 1999. Emissions were 0.0049 pounds of particulate matter per 1000 pounds of exhaust gases (limit: 0.10) and 1.9 pounds of VOC per hour (limit: 8.6).

EU-Solvent-Wipe (E-1.4) – Polish deck (Color1, Color2, Topcoat Reprocess)

Solvent (85% isopropyl alcohol or IPA & 15% water, generally) wet wipes are used for cleaning throughout paint process. Apart from 15% IPA wipes, there are 95% IPA, 90% IPA, 85% IPA wipes. Number of IPA wipe cases is counted for the purpose of record keeping.

About 2015, Chrysler implemented centrifugal recovery of solvents from rags. Such recovered solvent is reused in the assembly plant.

EU-Solvent-Wipe I: Based upon Dec 2014 VOC records,

1. 190.75 pounds of VOC per hour (limit: 488.6 pph)

2. 478.69 tons of VOC per year for wipes and cleaners (limit: 1,503 tpy)

35.2 pounds of VOC per case of IPA wipes is basis for calculations. The records are based upon beginning inventory, ending inventory and the amount received.

EU-Solvent-Wipe VI: Hours of operation, materials usage, VOC emission rates, and

VOC content records are kept.

EU-Solvent-Wipe VII: Semi-annual, annual cert. and quarterly (VOC) reports are submitted.

EU-Sealers&Adhesiv (E-1.9)

Control device: Sealer and adhesive materials hardly contain VOC (<< 5%). Most sealers are baked in E-coat oven and hence, e-coat Durr RTO controls sealer VOC.

Sealer deck emissions are dried in gel oven (sealer)

The emission unit consists of sealers and adhesive application through out the plant. After powder antichip, the assembly line splits into two lines (70 jobs per hour or jph = 35 jph +35 jph). After sealers application, the cars / trucks are baked in two ovens (East and West). The ovens operate at 295 °F but the truck body attains 140 °F to dry off VOCs. The line can be split between Color1-Tu-tone and Color2; Color2 has nothing to do with Tu-tone. All sealers are applied after powered coating except ditch rail sealer. Color1 and Color2 lines are identical.

EU-Sealers&Adhesiv I: Based upon 4Q2014 records / report, VOC emissions are

1. VOC: 3.50 pounds per hour (limit: 151.2 pph)

2. VOC: 48.04 tons of VOC per year (limit: 325.73 tpy).

3. VOC: 0.06 pounds of VOC per gallon of coating, minus water, as applied (limit: 3.0 lbs. /gallon; based upon 1,480 pounds of VOC / 24,530 gallons of coatings).

EU-Sealers&Adhesiv V: Semidize Company (there are other suppliers also) supplies US EPA RM24 data for VOC content. The highest use sealer has VOC content of 0.3 pound VOC per gallon.

EU-Sealers&Adhesiv VI: Production hours, material usage, materials VOC content, etc. records are kept. The calculations showing VOC limits compliance are performed in a timely manner and quarterly VOC reports are submitted.

EU-Sealers&Adhesiv VII: Quarterly VOC emissions reports are submitted.

The emissions data is based upon 4Q2014 VOC report.

Determination of sealer VOC destruction in E-coat bake oven (Dec 2012).

Personnel present:

Mr. Iranna Konanahalli (E-mail: konanahallii@michigan.gov)

Thomas Thornton (E-mail: tt158@chrysler.com)
Rohitkumar Patel (E-mail: rgp6@chrysler.com)

On November 30, 2012, Mr. Tom Maza of AQD-TPU approved the test protocol.

Chrysler used 2 inches * 4 inches metal panels to carry sealers through the assembly process. Three (3) sealers were used: one structural non-expandable sealer (like liquid nail or liquid weld, black) and two expandable sealers. Sealers (except black structural) expand upon baking in an oven so as to provide tight seal. Three sealers were applied to metal panels such that 9 sandwiches (3 sandwiches per sealer; i.e. 3 runs for each sealer) were made. Three control panels (not pairs) were used as blank.

On December 3, 2012, 9 pairs of panels and three control panels were weighed for tear weight; of course no sealers on them. Sealers (3 types) were applied on 9 pairs of metals so as to form sandwich of a sealer material between two metal plates (panels). 9 pairs (sandwiches) and 3 control panels were weighed again to obtain sealer weight.

Allowed panels and sealers to rest at room temperature for 16 hours and weighed, on December 4, 2012, again to determine weight loss due to evaporation. Because sealers are highly viscous (requiring 30,000 psi pressure to apply), weigh loss was practically zero.

The panels (9 pairs plus 3 controls) were baked for about 45 minutes by hanging them on the production vehicles / trucks; the panels were not spot-welded. The panels were allowed to cool to room temperature. The panels were again.

Each sample panel was weighed seven times based up six sigma principles to obtain accurate weight. Mettler Toledo AG204 Balance, which was calibrated on July 12, 2012, was used. Each time between a set of weighing, the balance was checked using standard weights. All weighing occurred in a vibration-free area (Mr. Thornton's office at Warren Truck Assembly Plant). Each time the balance was allowed to reset to zero.

On February 14, 2013, AQD received the sealer test results as follows (% VOC delivered to E-coat oven):

1. 100.10 percent structural epoxy adhesive (0.0% volatile content)

2. 97.73 percent Henkel-Terostat SA-4510 MS-CD 470F (0.6% volatile content)

3. 99.39 percent Henkel-Terostat 4600 MS-CD-473H (3% volatile content)

The sealer coated body is baked in E-coat oven (338 °F). The E-coat RTO destruction efficiency is 93.8% based upon November 2010 stack test.

Maximum volatile content of sealers is 3% and rest is solids. About 94 percent of VOC are destroyed in E-coat oven.

Sealer test conclusion: About 94 percent of VOC from sealers (maximum 3% volatile content) are destroyed in E-coat oven.

EU-Blackout Booth (E-1.1) – Long-term idle

The blackout application is done in a booth with a dry filter system. Blackout is done for Mitsubishi vehicles only. Blackout application is not used at this time because Mitsubishi vehicles are not manufactured at this time. During FY2013 inspection, black out line was still present but did not operate for several years.

The contract with Mitsubishi terminated during the bankruptcy (on April 30, 2009, Chrysler LLC filed for Chapter 11 reorganization). Chrysler wants to keep the booth and the corresponding permit just in case. Blackout process will be idled long-term.

At this time (FY 2015) Blackout Booth is used as an inspection area.

EU-Tutone (E-1.5)

Control devices: Thermal oxidizer (tu-tone TO) and Water-wash system

Tu-tone: All painting is robotic: two (2 mobile) BC robots and four (4 stationary) CC robots. Tu-tone application is baked to tack (not fully baked but sufficiently dried). After this semi-bake, vehicles are masked at masking deck.

Prior to 2006, all cars passing through Color1 booth used to go through tu-tuone booth; but all cars did not get tu-tone paint; only those tagged with bar code get tu-tone. No car painted at Color2 booth gets tu-tone color. Now (since 2006) there is an option to bypass tu-tone booth although this option is not always exercised. Approximately, 10% (8-10) of trucks get tu-tone coating.

The process consists of tu-tone booth for tu-toned vehicles with downdraft water wash for paint overspray, one thermal oxidizer (1 TO) to destroy the tu-tone oven VOC; in 2009, 1 old TO was replaced with 1 TO that came from E-coat, which now has RTO (known as e-coat RTO). The tu-tone process was idled since CY 2005. As predicted, tu-tone production was restored for model year 2009. Tu-tone started operating on trial basis since May 2008. Tu-tone vehicle production started in July 2008. In August 2008, full production started. As of September 2015, tu-tone continues to be done.

First tu-tone is done and then, after masking, color coating is done in Color1 (never Color2) line.

EU-Tutone I: Based upon 4Q2014 / Dec 2014 VOC records, VOC emissions are

1. 10.33 pounds of VOC per gallon of coating solids applied (limit: 12.3 pounds per GCSA) based upon the Protocol default transfer efficiency (TE) of 55 - EU-tutone

2. 4.12 pounds per hour (limit: 381.1 lbs/hr) - EU-tutone spray booth

3. 12.54 tons per year (limit: 821 tons/yr) EU-tutone spray booth

4. 0.143 pounds per hour (limit: 9.51 lbs/hr) - EU-tutone oven

5. 0.45 tons per year (limit: 20.53 tons/yr) EU-tutone oven

All emission calculations are based upon the Protocol default transfer efficiency (TE) of 55; for clearcoat TE value of 64.80 is used based upon October 2013 TE test. Because CC in the tu-tone booth is identical to CC of Color2 booth, the tested Color2 CC TE value of 64.80 (≈ 65) is used.

EU-Tutone III:

1. Thermal oxidizer is installed and operating properly.

2. Water wash system is essential to operation of paint spray booths. Abedengo inspects water wash systems once per week and submits reports

EU-Tutone V:

1. VOC: VOC content records using RM-24 are kept. PPG, a paint supplier, sends US EPA RM-24 VOC content information with each tote of paint.

2. TE: Transfer Efficiency (TE) Test is not done; however the Protocol default value of 55 for TE is used in calculations except for CC (CC TE = 65 default value). The RO Permit allows use of default TE value in lieu of TE test. At any rate, the RO Permit allows use of default TE value in lieu of TE test. Tu-tone accounts for only 10 percent total production based upon 2013 calculations.

3. OSL tests of April 2007 and August 2011:

    - **Per Mr. Sanni's test notice letter dated April 27, 2007, Topcoat Oven Solvent Loading Testing was conducted at PPG Laboratories. On July 17, 2007, AQD received Final Result Report for Topcoat Oven Solvent Loading (OSL). Per the report OSL test was conducted at PPG satellite testing facility, Sterling Heights. Three (3) solvent-borne basecoat (BC) and one (1) solvent-borne clearcoat (CC) were evaluated for OSL during the June 1, 2007, test. Obliviously Tu-tone was not part of the test and Tu-Tone process was not**

operating at that time. Based upon 100 % TE, Oven Solvent Loading (OSL) was 19.97%, 17.32%, 30.75% and 61.94% (revised from 50.98 per Dec 11, 2007 letter) for Bright White, Inferno Red Crystal, Bright Silver and Carbamate CC, respectively.

- Again in 2011 OSL tests were conducted in Windsor, Canada. On July 19, 2011, Mr. Tom Maza of AQD-TPU approved the test protocol. Mr. Maza approved off-site OSL testing according to Sec. 21 of the Auto Protocol. Chrysler was required to test a representative coating from each group based upon characteristics. The research center must simulate assembly plant conditions. At ARDC, OSL tests were conducted on August 1, 2011 using solvent-based basecoat coatings and clearcoat coatings. The Oven Solvent Loading (OSL) results at 100 percent transfer efficiency are summarized below. The OSL must be converted to actual TE conditions. Bright white coating: 18.59% and 1.728 lbs. / GACS; Bright silver coating: 29.74% and 2.544 lbs. / GACS; Deep Cherry Red coating: 19.27% and 1.659 lbs. / GACS; Clearcoat NCT10 coating: 61.33% and 6.731 lbs. / GACS Tu-tone was not part of the 2011 OSL test.

On August 6, 2013, AQD received a transfer efficiency (TE) test and an oven solvent loading (OSL aka CE = capture efficiency) plans notification. On September 11, 2013, Mr. Tom Maza of MDEQ-AQD-TPU approved the test protocol. All tests and calculations will be done according to the Auto Protocol (EPA-453/r-8-002). TE tests are based upon solid basecoat, metallic basecoat and clearcoat coatings. OSL tests are based upon basecoat and clearcoat coatings. During October 08, 2012, meeting (Tom Maza, Iranna Konanahalli, Rohit Patel), it was decided as follows: OSL only (no TE) for Topcoat Reprocess and Tu-tone and both TE and OSL for Colore2 (Color 1 and Color2 lines are identical and Color2 is chosen as a representative line). While OSL / CE tests were conducted using test panels, TE tests were conducted using vehicle bodies. During CC TE tests, robot malfunction caused the process operate under "degrade" mode", which may lower TE values. AQD SEMI received OSL and TE test report on March 06, 2014. However, AQD-TPU received the test report on December 12, 2013. Tom Maza of AQD-TPU completed the review of the OSL & TE test report on February 28, 2014.

Bureau Veritas North America, Inc. (Project Nos. 11013-000181.00 and 11013-000184.00) conducted both OSL and TE tests during October 2013.

AQD calculated values are generally in agreement with Bureau Veritas' values with a margin of error.

OSL / CE values are summarized below:

Coating line	AQD lbs./GACS	Bureau Veritas lbs./GACS	AQD CE %	Bureau Veritas CE %
Line2 BC	1.26	1.25	9	8.8
Line2 CC	3.97	3.98	32.5	32.2

Reprocess BC	1.25	0.74	9.1	5.2
Reprocess CC	2.93	2.97	24.0	24.1
Tu-tone BC	1.34	1.31	9.7	9.2
Tu-tone CC	3.74	3.64	30.3	29.5

(Line2 = Color2, BC = Basecoat, CC = Clearcoat)

While AQD calculated Line2 (Color2) TE values are 71.2 % for Metallic BC, 64.7% for Solid BC and 63.4% for CC, Bureau Veritas are 71.2 % for Metallic BC, 64.6% for Solid BC white and 64% for CC .

DE: DE tests were performed in Sep-Oct 2001, January 2002, May 2010 and April 2015

2001: During September 24 through October 1, 2001, Daimler-Chrysler's Stationary Environmental and Energy (Mr. Daniel Ozimek, Air Emissions Test Technician and Mr. William R. Prokopy, Air Emissions Test Specialist) together with Clayton Environmental conducted destruction efficiency (DE) tests for Topcoat Color Oven 1 (DE = 96.1 at 1310 °F & DE = 97.9 at 1350 °F), Topcoat Color Oven 2 (DE = 97.2 at 1310 °F & DE = 98.5 at 1350 °F), E-coat North Oven (DE = 99.1 at 1310 °F & DE = 99.1 at 1350 °F), Reprocess Oven (DE = 99.1 at 1310 °F & DE = 92.2 at 1350 °F), Tu-tone (DE = TBD at 1310 °F & DE = 96.9 at 1350 °F).

2002: Tu-Tone incinerator DE test was performed again on January 31, 2002. DE was only 72.3 percent at 1310 °F. This is too low DE to be acceptable to AQD. It appears that something went wrong with the January 2002 test because 40 degrees (reduced to 1310 °F from 1350 °F) reduction in fire box temperature should not reduce DE so drastically. Chrysler chose to reduce operating temperature anyway. AQD's Ms. Joyce Zhu discussed possible issuance of violation with Chrysler staff for this reduction in operating temperature to 1310 °F. Plant manager decided to increase temperature back to 1350 °F. The operating temperature reduction was motivated by energy and cost savings. Hence, Chrysler is not allowed to reduce operating temperature until a valid test is completed. However, the RO Permit requires neither minimum temperature nor minimum destruction efficiency.

2010: On May 4 and 5, 2010, Chrysler performed destruction efficiency (DE) tests of four Thermal Oxidizers (4 TOs: Color1, Color2, Tu-tone, Reprocess). This was a compliance test using US EPA Reference Method 25A for the topcoat color ovens (Coler1 and Color2), the reprocess oven, and the tu-tone oven. AQD's Jon Wilford observed the sampling procedures. MACES does not have a stack test review report although an observation report exists for May 2010 tests. AQD received May 2010 DE test report dated June 25, 2010, on July 1, 2010. Bureau Veritas North America, Inc. (248-344-2661), 45525 Grand River Ave., Suite 200, Novi, Michigan (Bureau Veritas Project No. 11009-109201.00) conducted both inlet and outlet sampling of VOC. Destruction Efficiencies reported are: Color1 = 91% at Firebox T = 1349 °F; Color2 = 99% at Firebox T = 1349 °F; Tu-tone = 86% at Firebox T = 1351 °F; Reprocess (1-12) = 92 % at Firebox T = 1351 °F. (E-1.5. III.A & B).

2015: On March 11, 2015, AQD received destruction efficiency (DE) test plan notification for thermal oxidizers at Color1, Color2, Tu-tone, Highbake reprocess. On March 19, 2015, Mr. Tom Gasloli of MDEQ-AQD-TPU approved the test protocol via a letter to Rohit Patel of FCA US. All tests, sampling, analysis and calculations to be done according to US EPA Reference Method 25A. Iranna Konanahalli and Tom Gasloli of AQD observed test during April 2015 and Stuart Duncan and Rohit Patel of FCA US coordinated the testing process. AQD-SEMI received the DE test report on June 02, 2015. Mr. Gasloli performed cursory review of tests results while comparing to the previous tests. Bureau Veritas North America, Inc. (Project No. 11015-000047.00) conducted DE sampling during April 14-17, 2015. Bureau Veritas reported thermal oxidizer DE values in percent (%): 95.8 for Color1, 97.5 for Color2, 88.0 for Reprocess and 88.3 for Tu-tone. The DE values may be used in the calculations.

Tu-tone thermal oxidizer (1 TO) was replaced in November 2009: In 2008 1 RTO replaced 2 TOs at e-coat oven. These for e-coat TOs (2) moved to Color1 oven and Tu-tone oven; one TO at each location.

EU-Tutone VI:

1. Thermocouples are calibrated or replaced once per year. Maintenance Dept. keeps calibration / replacement records.

2. Abedengo inspects water wash systems once per week and submits reports

3. Temperature monitor is placed in the fire-box.

4. According the US EPA Auto Protocol (the Protocol or Auto Protocol), VOC records are kept. Transfer Efficiency (TE) Test is not done; however the **Protocol default value of 55 for TE** is used in calculations except for CC (CC TE = 65 or Round(64.800 default value). The RO Permit allows use of default TE value in lieu of TE test. DE, TE, OSL values are kept.

5. Production hours kept.

6. VOC emissions rates to show compliance are calculated.

7. Abedengo inspects water wash systems once per week and submits reports.

8. Ovens depend on heat from thermal oxidizers and hence an interlock system stops the line.

9. CAM O&M plan submitted with ROP application. AQD obtained the copy of CAM.

Chrysler complies with NSPS MM via Auto Protocol calculations. Chrysler has implemented CAM.

EU-Tutone VII: Semi-annual, annual cert. and quarterly emissions reports are submitted

EG-FLUID-FILL (E-1.8)

The emission unit consists of fluid filling operations, e.g. gasoline, windshield, brake, power-steering, transmission, etc.

Newer models are equipped with on–board VOC control canisters; 95% control is assumed.

The EPA rule requires onboard refueling emissions controls for passenger cars and light trucks (e.g., pickups, mini-vans, and most delivery and utility vehicles). The EPA rule does not require onboard refueling emissions controls for heavy-duty vehicles and trucks (those over 8500 pounds gross vehicle weight rating (GVWR). The rule covers 97 percent of new vehicles and 94 percent of refueling emissions.

Therefore a vapor balance system is not required. The change is incorporated in to MI-ROP-B2767-2011. October 22, 2009 Violation Notice regarding Stage II vapor balance system is resolved. (MI-ROP-B2767-2003, E-01.8.V).

EG-Fluid-Fill, I: VOC emissions are:

1. VOC: 1.599 pounds per hour (limit: 12.3 lbs/hr)

2. VOC: 5.65 tons per year (limit: 26.39 tons/yr)

EG-Fluid-Fill, III: The US EPA Mobile Source rule requires on-board refueling emissions controls for passenger cars and light trucks

EG-Fluid-Fill, III: Production records are kept.

About 7.1 gallons of gasoline is filled into each truck.

EU-Final-Repair (E-1.7, Dept. 9190, aka Repair Dept.)

Mr. Jeff Moore, Spot Repair (Low Bake Repair) Area Manager, retired in 2009 via buy out.

George Asher is Dept. 9190 Manager; separated about October 2014. Floyd Jeffries is responsible for the repair operations. Mr. Jeffries was not present during FY 2015

inspection.

While Spot Repair (12 stations with carbon control for VOC) is in paint shop, Final Repair (two downdraft filter system booths) is the main building. Both use low bake.

Before spot repair painting, spot sanding is done in two identical booths, which are equipped with exhaust filters on one side. The sanding booths (2) are also known as Prep Booths. Final Repair consists of two identical repair booths with downdraft filters for paint overspray control, two sanding booths with side-draft filters and a paint mix room, which is enclosed in a cage.

The collision shop style down-draft booths are equipped intake air filters to ensure finish quality. Two spovens (spot ovens) that use IR heat provide heat provide for enhanced drying. Spovens are located within the down-draft booths.

Adjacent to these booths, final repair area is present where only pens and spray cans are used (Rule 287(b)).

EU-Final-Repair I: VOC emissions are:

1. VOC: 0.140 pounds per hour (limit: 45.0 lbs/hr)

2. VOC: 0.29 tons per year (limit: 52.1 tons/yr)

3. VOC: 4.044 pounds of VOC per gallons of coating, minus water, as applied (limit: 4.8 lbs/gal)

EU-Final-Repair III: Tri-Dim conducts inspection of booth and filters.

EU-Final-Repair V: US EPA RM 24 VOC content information is kept.

EU-Final-Repair VI: Tri-Dim conducts inspection of booth and filters. However, skilled trade workers replace all filters. Tri-Dim prepared an inspection report. Painters keep a log of paint and solvent usage. The records are then transferred to the VOC calculation spreadsheet by Mr. Duncan. VOC calculations are performed.

EU-Final-Repair VII: Semi-annual, annual cert. and quarterly reports are submitted.

Paint containers are kept closed to prevent evaporation of solvents and paint mixtures are locked in a cage. The paint curing is considered low bake; i.e., air dried (194 °F). Two ovens use IR Lamps for curing. Oven loading is about 15% based upon 1980s test. Often, touch-up tubes are used to repair small scratches. Six spot repair areas are present in Dept. 9190.

EU-Tempboilers (2 NSPS Dc NG fired portable boilers)

Two temporary portable natural gas fired boilers of capacity 25.1 (TempBoiler1) and 29.3 (TempBoiler2) million BTU per hour heat input were brought on site when the power house was shutdown for maintenance. However, they were not used until CY2009. On April 30, 2007, AQD received NSPS Dc Notification (40 CRF, Part 60, Subpart Dc, 60.48c) regarding these two temporary boilers. In October 2008, Chrysler began operation of temporary boilers as a part of energy savings program.

Trailer mounted (wheeled) portable boilers are used during non-winter seasons. Portable boilers are located in only one place; i.e. they are not moved. The temp boilers are operating at the spot for several years.

EU-Tempboilers VI: In CY 2014 natural gas usage is:

1. Boiler1: NA MMSCF per year
2. Boiler2: NA MMSCF per year
3. Total: 20.95 MMSCF per year

EU-Tempboilers IX: Only requirement of NSPS Dc is natural gas usage recordkeeping.

NSPS Dc Revisions:

1. **72 FR 32759 = Page 32759 Federal Register / Vol. 72, No. 113 / Wednesday, June 13, 2007 / Rules and Regulations / Final Rule – to add compliance alternatives and to revise certain recordkeeping and reporting requirements.**
2. **74 FR 5091 = Page 5091 Federal Register / Vol. 74, No. 17 / Wednesday, January 28, 2009 / Rules and Regulations / Final Rule - to correct technical and editorial errors.**

FG-Gasoline-Tanks (F-1.5)

One 25,000-gallon above ground tank (TK-1) replaced two 15000-gallon (<40,000 gallon) unleaded gasoline storage tanks. Gasoline tank is above ground tank with spill containment. All tanks are exempt from Rule 336.1201 pursuant to Rule 336.1284. While loading / dropping gasoline from a truck, Stage I vapor balance system is required pursuant to Rule 336.1703.

FG-Gasoline-Tanks III: Stage I vapor balance system is installed during the tank loading.

FG-Rule 331 (F-1.9)

Small particulate units, with 0.1 pound of particulate matter per 1000 pounds of exhaust gases emission limits, are covered by this flexible group.

Plasma cutting operation was removed in 2007. Maintenance tool shop is removed in 2004. Carpenter shop, which has not been used since 2008, is equipped with a baghouse with pulse-jet cleaning.

The operations removed will be removed from ROP during 2015 renewal.

FG-Storage-Tanks (F-1.6)

Storage tanks (transmission fluid, resin, diesel, engine oil, gear fluid, ect.), which are exempt from are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1284, are covered by this flexible group.

1500-gallon Tank (Split into 1A [7500-gal - empty] & 1B [7500-gal - purge solvent])

1500-gallon Tank - ethylene glycol antifreeze for car radiator.

1500-gallon Split Tank (7500-gallon Tank (5B) - brake fluid and 7500-gallon Tank (5A) – industrial waste)

1500-gallon Gasoline Tank (6) and 1500-gallon Gasoline Tank (8) – both tanks have vapor balance system.

1500-gallon Tank (Split into 7A [7500-gal - empty] & 7B [7500-gal - windshield washer])

1500-gallon Tank (Split into 9A [7500-gal - empty] & 9B [7500-gal - empty])

1500-gallon Diesel Tank (10)

1500-gallon Tank (12) – not used. Engines and transmissions come with oil.

1500-gallon Tank (13) – not used.

1500-gallon Tank (Split into 14A [7500-gal - empty] & 14B [7500-gal - power-steering fluid])

For all tanks above new tank farm has been built with spill containment:

1. 25,000-gallon gasoline tank
2. 8,000-gallon methanol tank
3. 8,000-gallon diesel tank
4. 8,000-gallon transmission fluid tank
5. 8,000-gallon brake fluid tank
6. 8,000-gallon glycol tank
7. 8,000-gallon diesel fuel additive (urea) tank

FG-Boilers (F-1.1, 4 NG fired boilers)

According Mr. Tim J. Nelson (FY 2011 inspection), Utilities Services Manager, DTE Energy, DTE Energy Services, DTE is (since 2008) managing all boiler operations. DTE purchased all non-production equipment (e.g. boilers, air compressors, etc.). DTE operates powerhouse using Chrysler's UAW labor. Chrysler continues to be responsible for all permits. Mr. Tim J. Nelson separated from DTE about 2013.

Mr. Brian D. Sayles (Ph: 586-497-3486; Fax: 586-497-6939; Cell: 586-524-5420; E-mail: saylesb@dteenergy.com), P.E., Utilities Services Manager, Chrysler Warren Truck, DTE Energy Services, assisted with natural gas fired powerhouse.

This flexible group consists of four natural gas boilers of design capacity:

1. 152 (Babcox & Wilcox Boiler3, installed 7/11/98) million BTU heat input per hour.

2. 106 (Babcox & Wilcox Boiler4, installed 7/11/98) million BTU heat input per hour.

3. 152 (Wickes Boiler5, installed 9/1/96) million BTU heat input per hour. and

4. 192 (Riley Stoker Boiler6, installed 10/29/84) million BTU heat input per hour.

While Boiler Nos. 3, 4 & 5 are equipped with low NOx burners, Boiler No. 6 is a high efficiency boiler but not low NOx. Hence, Boiler6 is a workhorse to save energy.

Two portable temp boilers (EU-Temp-Boilers: Cleave-Brooks boilers 25 & 29 million BTU per hour) were installed in 2006. The temp boilers are used during non-heating season (summer). Both temp boilers (2) are subject to NSPS Dc.

The boilers (including temp boilers, maximum design heat input capacity is greater than or equal to 10 million Btu/hr.) constructed / reconstructed after June 9, 1989, are subject to federal New Source Performance Standards (NSPS Dc) for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Part 60, Subpart Dc). In addition, pursuant to Rule 336.1282(b), the boilers burning sweet natural gas (up to 50 million BTU per hour) are exempt from Rule 336.1201 (Permit-to-Install). Furthermore, pursuant to Rule 336.1282(b), the fuel oil fired boilers (up to 20 million BTU per hour) are exempt from Rule 336.1201 (Permit-to-Install) subject to the condition that fuel oil (limited to No.1 and No.2) burnt has sulfur content no greater than 0.40 percent by mass. It may be noted that NSPS Dc allows sulfur content up to 0.50 percent sulfur by mass (0.5 pounds of sulfur dioxide per million BTU heat input).

The boilers are not equipped to burn fuel oil.

Zeolite Ion Exchange (DI) System is not present anymore. In February 2008, to prepare Boiler Feed Water (BFW), the Ion Exchange System was replaced by a Reverse Osmosis (RO) System. While Boiler No. 6, which is used most of time as it is most efficient of all boilers, is a workhorse of the power house, Boiler Nos. 3, 4 & 5 are used

during peak demand. 3-3.5% oxygen in flue gases (i.e. 8-10% excess air, EA) is maintained with sophisticated controls. Thermal efficiencies of Boiler Nos. 3, 4, 5 and 6 are 70, 78, 70 and 87 percents, respectively. Boiler No. 6 is operated most of the time. Incoming combustion air is preheated by recovering heat from exhaust gases. An economizer is used as well to further recover heat to preheat BFW.

FG-Boilers I, II: Natural gas usage and NOx emissions are:

1. Boiler 3: **82.39** MMSCF natural gas per year and corresponding 3770 pounds per year NOx

2. Boiler 4: **48.15** MMSCF natural gas per year and corresponding 1500 pounds per year NOx

3. Boiler 5: **164.46** MMSCF natural gas per year and corresponding 7630 pounds per year NOx

4. Boiler 6: **291.29** MMSCF natural gas per year and corresponding 43502 pounds per year NOx

5. Total: **586.29** (not including 2 temp boilers) MMSCF natural gas per year (limit: 1,305 MMSCF/yr) and corresponding 28 tons of NOx per year (limit: 119 tons/yr)

6. Two temp boilers: 20.95 MMSCF natural gas per year and corresponding 314 pounds per year NOx.

7. Entire facility: 2,218 MMSCF natural gas per year

Stuart Duncan keeps track of natural gas usage.

Amy Berendt, who replaced in 2010 Michael Check, who replaced in 2009 Ms. Brenna Harden, who in turn replaced Ms. Sandy Lopez in CY2008, moved to Trenton facility (engine plant) MITCO Utilities Management Program is used to track natural gas usage. About 2013, Amy Berendt transferred to Chrysler's Trenton Engine Plant.

FG-Boilers III: There is no fuel oil backup; only fuel burned is pipeline quality natural gas.

FG-Boilers V: NOx emissions tests were conducted as follows in 2006 and 2010:

1. On February 7, 2006, Daimler-Chrysler's Regulatory Planning / Compliance and Energy Laboratory conducted performance test on Boiler No. 6 for nitrogen oxides (NOx). Mr.

Thomas Maza, Mr. Jason Wolf and Mrs. Joyce Zhu of MDEQ-AQD observed the tests. This test was required by the RO permit. The nitrogen oxides emissions reported were 5.15 pounds of NOx per hour and 0.046 pounds of NOx per million BTU based upon 42.7 pounds of steam per hour output during the February 2006 test. AQD received the original report on March 14, 2006. On May 1, AQD received a revised result: 0.068 pounds of NOx per million BTU based upon 42.7 pounds of steam per hour output. Mr. Wolf suggested O2 content correction in the calculations; 0.068 lbs NOx / MMBTU is the corrected result. However, there is no emission limit in the RO permit other than 119 tpy NOx.

2. On October 13, 2010, AQD received the NOx test plan for the boilers. On November 3, 2010, AQD's Tom Maza approved the test plan that used US EPA RM 7E. The approved plan required minimum 95 percent boiler load. During February 23-25, 2011, Bureau Veritas North America, Inc. (248-344-2661), 45525 Grand River Ave., Suite 200, Novi, Michigan (Bureau Veritas Project No. 11011-000043.00) conducted NOx sampling. On May 5, 2011, AQD received the NOx test report. 3-run average NOx emissions reported are:

   - Boiler 3: 0.11 pounds of NOx per MMBTU and 10.63 pounds of NOx per hour
   - Boiler 4: 0.0.08 pounds of NOx per MMBTU and 4.61 pounds of NOx per hour
   - Boiler 5: 0.07 pounds of NOx per MMBTU and 6.90 pounds of NOx per hour
   - Boiler 6: 0.16 pounds of NOx per MMBTU and 14.71 pounds of NOx per hour

However, there is no emission limit in the RO permit other than 119 tpy NOx.

FCA US (Chrysler) is expected to perform stack test during 2015-2016 winter.

FG-Boilers VI: Natural gas usage records are kept. Routine maintenance of boilers is done.

The boilers were not subject to the MACT (previous standard) emission limits. However, on June 8, 2007, US Court of Appeals has mandated that EPA vacate the Boiler MACT Rule in its entirety. MDEQ-AQD never made 112(j) case-by-case MACT determination.

The boilers are subject to: Major Source Boiler NESHAP / MACT 5D, 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Page 7138, Federal Register / Vol. 78, No. 21 / Thursday, January 31, 2013 / Rules and Regulations / Final rule; notice of final action on reconsideration. The December 23,

2011, proposed rule addressed specific issues and provisions the EPA identified for reconsideration. This summary of the final rule reflects the changes to 40 CFR, Part 63, subpart DDDDD (March 21, 2011 final rule) in regards to those provisions identified for reconsideration and on other discrete matters identified in response to comments or data received during the comment period.

The boilers are existing units as they commenced construction before June 4, 2010. The boilers do NOT burn any fuel other than pipeline quality sweet natural gas (NG); they do not burn solid fossil fuel, biomass, liquid fuel, etc. There is no emission limit for Gas1 that includes natural gas. For boilers over 10 million BTU per hour heat input, annual tune-up is required (no more than 13 months between tune-ups). Initial tune-up is due by January 31, 2016. Only boilers with emission limits are required to conduct performance tests (within 180 days of compliance date (January 31, 2016), July 29, 2016. Chrysler's boilers are not subject to emission limits as they fire only NG.

Boiler MACT Initial Notification is due by May 31, 2013. AQD received on May 24, 2013, Major Source Boiler MACT Initial Notification dated May 20, 2013. The notification covers Boiler Nos. 3-6 (4 boilers) and two Temp boilers.

FG-Spot-repair (previous name FG-Reprocess is incorrect)

Control device: Monroe Environmental System consists of a series of filters and carbon.

1-12 Portable IR aka paint spot deck. Spot repair stations 1-12

In a prep booth vehicles are sanded and wiped with IPA wipes. Reprocess jobs can either go to Color2 line or Reprocess line, where 90 percent of reprocess jobs are done. Reprocess robots have always bell applicators.

FG-spot-repair, I: VOC emissions are (4Q2014 / Dec 2014):

1. VOC: 1.025 pounds per day (limit: 146.4 lbs / day)

2. VOC: 0.17 tons per year (limit: 22.0 tons / yr)

3. VOC: 4.284 pounds per gallon of coating, minus water, as applied (limit: 4.8 lbs / gal).

FG-spot-repair, III: The exhaust for the Paint Shop Lowbake spot repair deck is equipped with carbon adsorption system. Monroe Environmental System consists of a series of filters and carbon. The system is monitored on a monthly basis by Tri-dim. The carbon system is also monitored by Maintenance Dept. and the Environmental Specialist. Based upon sight glass change in color, Carbon Filters are changed. Based upon the past history, carbons last about 1-1.5 years.

FG-spot-repair, V, VI: RM -24 VOC content records are kept. Tri-Dim monitors the

Monroe Environmental System on a monthly basis.

All 12 portable VOC emissions capture devices are present. The captured emissions are ducted to Monroe Environmental System via a common manifold.

FG-PM-Misc (F-1.3)

This emission group consists of all miscellaneous particulate emissions units with filters. Examples of such units are polishing, sanding, etc. I did not inspect most of these units

FG-Topcoat (F-1.8, Coler1, Color2, and High-bake Repair or Topcoat Reprocess)

Control devices:

Color1, Color2 and Topcoat Reprocess water wash systems for particulate matter due to paint over-spray.

Color1 oven thermal oxidizer, Color2 oven thermal oxidizer, topcoat reprocess oven thermal oxidizer.

Color1 and Color 2 lines are identical. Reprocess line shorter and slower. About 4-6% trucks go through topcoat reprocess line based upon inspection and defects.

All cars passing through Color1 booth used to (before 2006) go through tu-tuone booth; but all cars did not get tu-tone paint; only those tagged with bar code get tu-tone. No car painted at Color2 booth gets tu-tone color. Since 2006 there is an option to bypass tu-tone although this option is not always exercised.

The flexible group consists of two identical topcoat lines (Coler1 and Color2) and high-bake operation for repair; high-bake repair is also known as topcoat reprocess. Total design capacity is 72 jobs per hour (Coler1 = 36 and Color2 = 36). Usually Chrysler runs the topcoat lines at 66-68 jobs per hour; adjustments are made by shutting down the plant for a week based upon product inventory. For efficiency and union contract reasons, both Color1 and Color2 lines are run.

There are two identical topcoat lines (Color1 at second level and Color2 at second level) that split from one line after powder coating; tu-tone line was idled since CY 2005 until July 2008; trial operation started in May 2008; full operation started in 2009. There is no sound-deadener application but deadener mats are placed. There is a tack-off area where a body is wiped with IPA (75% IPA, 25 water) wipes, if necessary; before 2009 all cars were wiped. Hand sanded, if needed, and tacked off again. A bar code on the body determines a color to be coated. Air blow-off is present to remove particulate on the body.

3 robots (2 robots to paint and 1 robot to hold hood, etc.) paint VOC based basecoat for engine compartment. 6 side (3 on each side) 3 overhead (top) bells spray basecoat. Complex moves by bells are possible. In all, 6 (Color1 + Color2) robots are present for basecoat. Bells do majority (70%) of painting. Weighted average TE is used in the

VOC calculations. Flash-off and observation zones are present. Manual painting can be done but not standardized.

Clearcoat is done with 5 robots (3 on one side; 2 on other side) 6 bells (3 on each side), 3 overhead bells, manual application for cut-in areas; total 9 bells. Manual CC spray is done for inaccessible areas such as door jams. There is de-mask area for tu-tone trucks. There is 40-ft (5-10 minutes) flash-off zone. Tu-tone is painted first and then trucks are masked for other coating steps. At the end of topcoat including clearcoat, tu-toned trucks are de-masked. There is some overlapping of paints since there is no masking at tu-tone booth. Topcoat (BC & CC) is done on masked trucks when tu-tone is involved.

High-bake repair line is a part of topcoat. About 4% based upon major defects go through topcoat high-bake reprocess. The reprocess line is smaller than Color1 and Color2. Only tagged cars / trucks go through the topcoat reprocess. Mostly robotic painting is done in the reprocess line; some manual painting is also done. There are 4 color-coat robots and 6 clearcoat robots. Manual CC is also done. Reprocess line has its own oven and a thermal oxidizer.

Paint is baked for 45 minutes at 285-300 degrees Fahrenheit.

There are four thermal oxidizers (4 TO) in all and one regenerative thermal oxidizer (1 RTO): 1 TO for tu-tone (idled since CY 2005 but restarted in July 08), 1 RTO for Uniprime (E-coat), 1 TO for tu-tone, 1 TO for Color1, 1 TO for Color2 and 1 TO for topcoat high bake reprocess. Based upon the computer data, temperature of each incinerator was about 1350 deg; 1350 °F is set point for TOs; 1375 °F for RTO. When TO / RTO is down, interlock system stops the line. Heat from thermal oxidizers (but not e-coat RTO) is used in bake ovens, which are critical to the operation of paint process. Therefore, the paint lines cannot be operated without operation of thermal oxidizers. One Uni-prime (E-coat) RTO does not provide its heat to the e-coat oven.

In CY2008 one e-coat RTO replaced two e-coat thermal oxidizers (2 TO) as a part of energy savings program. In 2009, 2 E-coat TOs that an RTO replaced moved to Color1 and Tu-tone ovens because these were in better shape.

All ovens (4) are identical. Each oven has five (5) heat exchangers (HE). Hot exhaust gases from a thermal oxidizer exchange heat with a bake oven air. Part of oven air (25%) is purged to maintain VOC below 25% LEL (Lower Explosion Limit) for safety and insurance reasons. The purged oven air, which is laden with VOC, is ducted to a thermal oxidizer to combust VOC to water and carbon dioxide. In order maintain normal pressure equilibrium an equal amount of make-up air is introduced. Make-up air is preheated using TO exhaust. Also, Color1 and Color2 ovens are equipped with gas fired heaters to augment TO heat. Neither tu-tone nor reprocess oven has additional heaters.

FG-Topcoat, I: VOC emissions are (Dec / CY2014):

1. VOC: 8.74 pounds of VOC per gallon of applied coating solids (limit: 12.3 lbs / GCAS) – FG-Topcoat

2. VOC: 158.55 pounds of VOC per hour (limit: 270.2 lbs / hr) – spray booths of each topcoat line (Color1 = 158.55 & Color2 = 158.55)

3. VOC: 463.79 tons of VOC per year (limit: 582.11 tons / year) – spray booths of each topcoat line (Color1 = 463.79 & Color2 = 463.79)

4. VOC: 0.83 pounds of VOC per hour (limit: 6.8 lbs / hr) –bake ovens of each topcoat line (Color1 oven = 0.83 & Color2 oven = 0.83)

5. VOC: 6.48 tons of VOC per year (limit: 15.67 tons / year) –bake ovens of each topcoat lines (Color1 oven = 6.48 & Color2 oven = 6.48)

6. VOC: 15.06 pounds of VOC per hour (limit: 89.9 lbs / hr) – high bake repair spray booth

7. VOC: 43.85 tons of VOC per year (limit: 193.74 tons / year) – high bake repair spray booth

8. VOC: 0.21 pounds of VOC per month (limit: 2.3 lbs / mo) – high bake repair oven

9. VOC: 0.63 tons of VOC per year (limit: 5.22 tons / yr) – high bake repair oven

FG-Topcoat, III: Thermal oxidizers are operated at 1360 °F. Below 1337 °F the line shuts down. Temperature set-point for the oxidizers is 1350 deg F. PLC and Data Acquisition System puts the temperature charts on the computer. Downdraft water-wash system is present to control paint overspray. Mr. Stuart Duncan and a subcontractor, Abendgo, conduct weekly inspection of the water-wash system. Proper functioning of the water wash system is critical to high quality paint finish.

FG-Topcoat, V: Testing is done as follows:

1. RM24 VOC content: records are kept.

2A. TE: On September 8, 2008, AQD received a transfer efficiency test plan notification. According the the test notice, the topcoat color booths would be tested for transfer efficiency on November 10-13, 2008. Since the color booths (Color1 and Color2) are identical, Color2 booth would be used as a representative booth for the purpose of transfer efficiency (TE). On September 26, 2008, Mr. Jason Wolf of MDEQ-AQD-TPU approved the test protocol. Mr. Tom Maza of MDEQ-AQD-TPU observed the November 2008 TE test. MACES has November 12, 2008, TE test observation report. MACES did not have report received entry for this TE test report. Warren office did not

have the TE test report in its filing system. On September 24, 2009, I talked to Mr. Sanni regarding the non-submittal of TE test report issue. I asked him to send immediately an electronic copy of the report and send the original report (two copies: one for MDEQ-AQD-TPU, Lansing and one for MDEQ-AQD-SEMI, Warren) along with an original certification in the mail. Color2 TE tests were done in November 2008. Although TE test were not submitted promptly in 2008, on March 4, 2010, AQD received, with a responsible official signature, November 2008 TE tests report. 2008 TE test results are as follows:

1. Basecoat/Clearcoat and Clearcoat only

    a. TE for Stone White SW1/CC = 70.98%
    b. TE for Brilliant Black AXR/CC = 64.07%
    c. TE for Clearcoat Clear = 64.80%

2. Calculated basecoat only

    a. TE for Stone White =70.32% straight shade
    b. TE for Brilliant Black =72.03% metallic/mica

2B. TE: On August 6, 2013, AQD received a transfer efficiency (TE) test and an oven solvent loading (OSL aka CE = capture efficiency) plans notification. According the test notice, the topcoat color booths would be tested for transfer efficiency in October 5-18, 2013. Since the color booths (Color1 and Color2) are identical, Color2 booth would be used as a representative booth for the purpose of transfer efficiency (TE). The test results are good for Color1, Color2, and HiBake Reprocess topcoat lines. On September 11, 2013, Mr. Tom Maza of MDEQ-AQD-TPU approved the test protocol. All tests and calculations will be done according to the Auto Protocol (EPA-453/r-8-002). TE tests are based upon solid basecoat, metallic basecoat and clearcoat coatings. OSL tests are based upon basecoat and clearcoat coatings. See below for results.

3A. OSL: Per Mr. Sanni's test notice letter dated April 27, 2007, Topcoat Oven Solvent Loading Testing was conducted at PPG Laboratories. On July 17, 2007, AQD received Final Result Report for Topcoat Oven Solvent Loading (OSL). Per the report OSL test was conducted at PPG satellite testing facility, Sterling Heights. Three (3) solvent-borne basecoat (BC) and one (1) solvent-borne clearcoat (CC) were evaluated for OSL during the June 1, 2007, test. Obliviously Tu-tone was not part of the test and Tu-Tone process was not operating at that time. Based upon 100 % TE, Oven Solvent Loading (OSL) was 19.97%, 17.32%, 30.75% and 61.94% (revised from 50.98 per Dec 11, 2007 letter) for Bright White, Inferno Red Crystal, Bright Silver and Carbamate CC, respectively. . (F-1.8. III.B).

3B. OSL: Again in 2011 OSL tests were conducted in Windsor, Canada. On July 19, 2011, Mr. Tom Maza of AQD-TPU approved the test protocol. Mr. Maza approved off-site OSL testing according to Sec. 21 of the Auto Protocol. Chrysler was required to

test a representative coating from each group based upon characteristics. The research center must simulate assembly plant conditions. At ARDC, OSL tests were conducted on August 1, 2011 using solvent-based basecoat coatings and clearcoat coatings. The Oven Solvent Loading (OSL) results at 100 percent transfer efficiency are summarized below. The OSL must be converted to actual TE conditions. Bright white coating: 18.59% and 1.728 lbs. / GACS; Bright silver coating: 29.74% and 2.544 lbs. / GACS; Deep Cherry Red coating: 19.27% and 1.659 lbs. / GACS; Clearcoat NCT10 coating: 61.33% and 6.731 lbs. / GACS. OSL was not performed for tu-tone.

3C OSL and TE: On August 6, 2013, AQD received a transfer efficiency (TE) test and an oven solvent loading (OSL aka CE = capture efficiency) plans notification. On September 11, 2013, Mr. Tom Maza of MDEQ-AQD-TPU approved the test protocol. All tests and calculations will be done according to the Auto Protocol (EPA-453/r-8-002). TE tests are based upon solid basecoat, metallic basecoat and clearcoat coatings. OSL tests are based upon basecoat and clearcoat coatings. During October 08, 2012, meeting (Tom Maza, Iranna Konanahalli, Rohit Patel), it was decided as follows: OSL only (no TE) for Topcoat Reprocess and Tu-tone and both TE and OSL for Colore2 (Color 1 and Color2 lines are identical and Color2 is chosen as a representative line). While OSL / CE tests were conducted using test panels, TE tests were conducted using vehicle bodies. During CC TE tests, robot malfunction caused the process operate under "degrade" mode", which may lower TE values. AQD SEMI received OSL and TE test report on March 06, 2014. However, AQD-TPU received the test report on December 12, 2013. Tom Maza of AQD-TPU completed the review of the OSL & TE test report on February 28, 2014.

Bureau Veritas North America, Inc. (Project Nos. 11013-000181.00 and 11013-000184.00) conducted both OSL and TE tests during October 2013.

AQD calculated values are generally in agreement with Bureau Veritas' values with a margin of error.

OSL / CE values are summarized below (Line2 = Color2, BC = Basecoat, CC = Clearcoat):

Coating line	AQD lbs./GACS	Bureau Veritas lbs./GACS	AQD CE %	Bureau Veritas CE %
Line2 BC	1.26	1.25	9	8.8
Line2 CC	3.97	3.98	32.5	32.2
Reprocess BC	1.25	0.74	9.1	5.2
Reprocess CC	2.93	2.97	24.0	24.1
Tu-tone BC	1.34	1.31	9.7	9.2
Tu-tone CC	3.74	3.64	30.3	29.5

While AQD calculated Line2 (Color2) TE values are 71.2 % for Metallic BC, 64.7% for Solid BC and 63.4% for CC, Bureau Veritas are 71.2 % for Metallic BC, 64.6% for Solid BC white and 64% for CC . All values are based upon 100% TE.

4. DE:

1. During September 24 through October 1, 2001, Daimler-Chrysler's Stationary Environmental and Energy (Mr. Daniel Ozimek, Air Emissions Test Technician and Mr. William R. Prokopy, Air Emissions Test Specialist) together with Clayton Environmental conducted destruction efficiency (DE) tests for Topcoat Color Oven 1 (DE = 96.1 at 1310 °F & DE = 97.9 at 1350 °F), Topcoat Color Oven 2 (DE = 97.2 at 1310 °F & DE = 98.5 at 1350 °F), E-coat North Oven (DE = 99.1 at 1310 °F & DE = 99.1 at 1350 °F), Reprocess Oven (DE = 99.1 at 1310 °F & DE = 92.2 at 1350 °F), Tu-tone (DE = TBD at 1310 °F & DE = 96.9 at 1350 °F).

2. On May 4 and 5, 2010, Chrysler performed destruction efficiency (DE) tests of four Thermal Oxidizers (4 TOs). This was a compliance test using US EPA Reference Method 25A for the topcoat color ovens (Coler1 and Color2), the reprocess oven, and the tu-tone oven. AQD's Jon Wilford observed the sampling procedures. MACES does not have a stack test review report although an observation report exists for May 2010 tests. AQD received May 2010 DE test report dated June 25, 2010, on July 1, 2010. Bureau Veritas North America, Inc. (248-344-2661), 45525 Grand River Ave., Suite 200, Novi, Michigan (Bureau Veritas Project No. 11009-109201.00) performed the May 2010 inlet and out sampling of VOC. Destruction Efficiencies reported are: Color1 = 91% at Firebox T = 1349 °F; Color2 = 99% at Firebox T = 1349 °F; Tu-tone = 86% at Firebox T = 1351 °F; Reprocess = 92 % at Firebox T = 1351 °F.

3. On March 11, 2015, AQD received destruction efficiency (DE) test plan notification for thermal oxidizers at Color1, Color2, Tu-tone, Highbake reprocess. On March 19, 2015, Mr. Tom Gasloli of MDEQ-AQD-TPU approved the test protocol via a letter to Rohit Patel of FCA US. All tests, sampling, analysis and calculations to be done according to US EPA Reference Method 25A. Iranna Konanahalli and Tom Gasloli of AQD observed test during April 2015 and Stuart Duncan and Rohit Patel of FCA US coordinated the testing process. AQD-SEMI received the DE test report on June 02, 2015. Mr. Gasloli performed cursory review of tests results while comparing to the previous tests. Bureau Veritas North America, Inc. (Project No. 11015-000047.00) conducted DE sampling during April 14-17, 2015. Reported thermal oxidizer DE values in percent (%): 95.8 for Color1, 97.5 for Color2, 88.0 for Reprocess and 88.3 for Tu-tone. The DE values are acceptable.

FG-Topcoat, VI: Thermo-couples are calibrated or replaced on annual basis. Mr. Stuart Duncan and a subcontractor, Abendgo, conduct weekly inspection of the water-wash system. Proper functioning of the water wash system is critical to high quality paint finish. Thermocouples are installed at firebox. USEPA Protocol calculations are performed and VOC records are kept. TE, OSL and DE values are kept. VOC emissions rates are calculated to show compliance in accordance with the Protocol. The line can not operate without benefit of heat from thermal oxidizers (CAM).

FG-Topcoat, VII: Semi-annual, annual cert. and quarterly reports are submitted.

TE values of 0.64 for CC, 0.646 for solids (white), 0.712 for metallics are used in

calculations. DE values of 88 percent for Reprocess and 95.8 percent for Color1 and 97.5 percent for Color2 are used in the calculations.

While AQD calculated Line2 (Color2) TE values are 71.2 % for Metallic BC, 64.7% for Solid BC and 63.4% for CC, Bureau Veritas are 71.2 % for Metallic BC, 64.6% for Solid BC white and 64% for CC . All values are based upon 100% TE.

FG-AUTOMACT: NESHAP / MACT Subpart IIII (Auto MACT)

Chrysler WWAP owns or operate an existing NESHAP / MACT 4I source, as defined in § 63.3082, that is located at a facility which applies topcoat to new automobile or new light-duty truck bodies or body parts for new automobiles or new light-duty trucks, and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAP). The regulations begin at 40 CFR, 63.3080 (§ 63.3080). According to § 63.3082(g), the plant is an existing source because it is not a new source (a new affected source if it commenced its construction after December 24, 2002); a reconstruction of the paint shop may make it new source (§ 63.3082(f)). As an existing NESHAP / MACT 4I source, Chrysler must comply with the standards by April 26, 2007 (§ 63.3083(b)).

On June 29, 2007, AQD received Initial Notification of Compliance Status [§63.3110(c)] dated June 28 (due June 30, 2007). Mr. Robert Byrnes of AQD is reviewed this INCS statement. Chrysler has chosen 0.60 pounds of HAP per gallon of coating solids deposited option [63.3091(a)] based upon coating formulation without using incinerator credits. Hence, Auto MACT monitoring of RTO and TOs is not done.

Chrysler claims that it has complied with the NESHAP / MACT IIII without a deviation during the reporting period (Jan-Dec, 2014 Cert.): 0.60 lbs. / gallon limit.

FG-AUTOMACT, I: HAP emissions are as follows:

1. HAP: 0.318 pounds of HAP per gallon of coating solids deposited (limit: 0.60 lbs / GACS) FG-AutoMact with Uniprime – Existing source

2. NA (limit: 1.10 lbs. / GACS). Chrysler may choose comply with either I.1 or I.2. Chrysler has chosen I.1

3. HAP: 0.006 pounds of HAP per pound of coating (limit: 0.010 lb HAP / lb coating) FG-Sealers&Adhesive – Existing source

4. HAP: 0.00 pounds of HAP per pound of coating (limit: 0.010 lb HAP / lb coating) Not operating deadner – Existing source

Because Chrysler complies with the MACT via formulation only and it does not need

VOC control equipment for compliance, only AutoMact work plan is sufficient. Work Plan dated November 20, 2006, is implemented.

Chrysler has developed and implemented a work practice plan (FG-MACT, III.1) to minimize organic HAP emissions from the storage, mixing, and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by, all coating operations for which emission limits are established under § 63.3090(a) through (d) or § 63.3091(a) through (d) (§ 63.3094).

I could not find the Initial Notification in the NESHAP Blue Folder. The notification was due 120 days after June 25, 2004. However, if Chrysler notified pursuant to CAA Sec. 112(j) concerning applicability of the Auto MACT, it is exempt from Initial Notification. Such CAA Sec. 112(j) notification was received by AQD on August 6, 2002, via letter dated July 30, 2002, from Mr. Fred Martino-DiCicco, Plant Manager, WTAP. Items checked in the 112(j) notification were: Automobile & Light Duty Truck Manufacturing; Misc. Metal Parts & Coating; Industrial, Commercial & Institutional Boilers & Process Heater; Emergency Generators (CI RICE MACT).

Semiannual compliance reports are submitted on biannual basis coinciding with ROP certification reports (§ 63.3120): Jan-Jun & Jul-Dec. Generally zero deviations are reported.

FG-OLD: NESHAP / MACT Subpart EEEE Organic Liquids Distribution (Non-Gasoline) or OLD NESHAP

On June 2, 2004, AQD received the OLD MACT initial notification dated May 27. The storage tanks store methanol based windshield wiper solvent, a cleaner that contain diethylene glycol monobutyl ether.

The files contain no information other than the Initial Notification. Additional, investigation is necessary to determine compliance with the OLD MACT.

The compliance date for an existing source is February 5, 2007.

Only survey of storage tanks is done.

FG-COLDCLEANERS (F-1.7)

This emission group consists of 9 cold-cleaners; of 9, 6 are converted to water-based cleaners. Mr. Stuart Duncan inspects all units. Safety-Kleen inspects and services the units as well. Inspection spreadsheet must include date of installation in addition to the items in the spreadsheet.

The Chrysler does not use any of the halogenated solvents regulated by Maximum Achievable Control Technology(MACT) in the cold cleaners; therefore, the cold cleaners are not subject to the MACT standards for halogenated solvent cleaner (40 CFR 63 Subpart T).

FG-RULE287 (F-1.4)

This FG is not used at this time. Some spray cans and pens are used.

FG-RULE290

This FG is not used at this time.

Each line (Color1, Color2 and Reprocess) has inspection area.

NESHAP / MACT Subpart DDDDD (Boiler MACT)

Chrysler was subject to 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (Federal Register / Vol. 69, No. 176 / Monday, September 13, 2004 / Page 55218 / Rules and Regulations). However, on June 8, 2007, US Court of Appeals had mandated that EPA vacate the Boiler MACT Rule in its entirety; in the interim period, 112(j) MACT permit was required. US EPA re-promulgated the Area Source Boiler MACT as NESHAP / MACT 6J

01/09/12 - The U.S. District Court for the DC Circuit vacated the EPA's May 18, 2011, notice that delayed the effective dates of the Major Source Boiler MACT rule. The effective dates of the final rules published in the Federal Register on March 21, 2011 (76 FR 15608 and 76 FR 15704), are delayed until such time as judicial review is no longer pending or until the EPA completes its reconsideration of the rules, whichever is earlier.

12/23/11 - The EPA published the Major Source Boiler MACT reconsideration proposal (40 CFR 63, subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Page 80598 Federal Register / Vol. 76, No. 247 / Friday, December 23, 2011 / Proposed Rules). The EPA will accept comment on the reconsideration proposal until February 21, 2012.

The boilers are subject to: Major Source Boiler NESHAP / MACT 5D, 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Page 7138, Federal Register / Vol. 78, No. 21 / Thursday, January 31, 2013 / Rules and Regulations / Final rule; notice of final action on reconsideration. The December 23, 2011, proposed rule addressed specific issues and provisions the EPA identified for reconsideration. This summary of the final rule reflects the changes to 40 CFR, Part 63, subpart DDDDD (March 21, 2011 final rule) in regards to those provisions identified for reconsideration and on other discrete matters identified in response to comments or data received during the comment period.

The boilers are existing units as they commenced construction before June 4, 2010. The boilers do NOT burn any fuel other than pipeline quality sweet natural gas (NG); they do not burn solid fossil fuel, biomass, liquid fuel, etc. There is no emission limit for Gas1 that includes natural gas. For boilers over 10 million BTU per hour heat input,

annual tune-up is required (no more than 13 months between tune-ups). Initial tune-up is due by January 31, 2016. Only boilers with emission limits are required to conduct performance tests (within 180 days of compliance date (January 31, 2016), July 29, 2016. Chrysler's boilers are not subject to emission limits as they fire only NG.

Boiler MACT Initial Notification is due by May 31, 2013. AQD received on May 24, 2013, Major Source Boiler MACT Initial Notification dated May 20, 2013. The notification covers Boiler Nos. 3-6 (4 boilers) and two Temp boilers.

The MACT 5D boilers are:

1. 152 million BTU per hour (Babcox & Wilcox Boiler3, installed 7/11/98),
2. 106 million BTU per hour (Babcox & Wilcox Boiler4, installed 7/11/98),
3. 152 million BTU per hour (Wickes Boiler5, installed 9/1/96)
4. 192 million BTU heat input per hour (Riley Stoker Boiler6, installed 10/29/84).
5. 25 million BTU per hour Temp boiler (Cleave-Brooks installed in 2006, portable). The temp boilers are used during non-heating season.
6. 25 million BTU per hour Temp boiler (Cleave-Brooks installed in 2006, portable). The temp boilers are used during non-heating season.

DIESEL GENERATORS

Based upon ROP application two 900 HP CI RICE Diesel emergency generators are present (installed 01/01/1985).

These engines will be incorporated into the ROP for NESHAP / RICE MACT 4Z.

RICE MACT 4Z: Emergency diesel generators may be subject to RICE MACT 4Z, Major Source NESHAP / MACT ZZZZ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines / Final rule (Page 3568, Federal Register / Vol. 73, No. 13 / Friday, January 18, 2008 / Rules and Regulations / Final rule).

Generators are greater than 500 HP existing engines.

Engines >500 Horsepower (HP) at major source of HAP:

- Existing engines if constructed before December 19, 2002
- New engines if constructed on or after December 19, 2002
- Reconstructed engines if reconstruction began on or after December 19, 2002

Existing RICE engines at major MACT sources

Change oil/filter & inspect hoses/belts every 500 hours or annually; inspect air cleaner (CI) or spark plugs (SI) every 1,000 hours or annually No emission standards

CONCLUSION

Chrysler appears to be in compliance with the ROP and Auto MACT.

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